COUNTY OF LOS ANGELES
Public Health

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August 11, 2011

TO: Each Supervisor

FROM: Jonathan E. Fielding, M.D., M.P.H. jefielding mo
Director and Health Officer

SUBJECT: **2010 ANNUAL REPORT – OCEAN WATER QUALITY**

Enclosed is the *2010 Annual Report – Ocean Water Quality, Los Angeles County,* prepared by the Department of Public Health (DPH), Environmental Health Division (EH). This Annual Report is an overview of water quality standards, methods for sampling and analysis, and the analytical results for Los Angeles County beaches during 2010.

This memo highlights concerns and recommended solutions contained in the report for enhancing the efficiency of the ocean monitoring program, as well as suggested cost reductions that can be implemented while continuing to maintain the utmost protection of the public's health.

For FY 2011-12, DPH's ocean monitoring efforts will focus on the identification of source contamination at those sites that consistently fail to meet State standards. The goal is to work collaboratively with appropriate local or State agencies to initiate corrective actions to reduce and/or eliminate exceedances at problematic beaches.

Please let me know if you have any questions or would like more information.

JEF:km

Attachment

c: Chief Executive Officer
County Counsel
Executive Officer, Board of Supervisors

# 2010 Annual Report

# Ocean Water Quality
# Los Angeles County

May 2011

County of Los Angeles
Public Health

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## INTRODUCTION

The Los Angeles County coastline encompasses some of the most popular beaches in the world. These beaches are invaluable not only as natural resources but also as a vital economic asset to the County. Each year, these beaches attract more than 50 million visitors, both tourists and locals alike. The year-round sunshine makes these beaches inviting to persons of all ages for numerous beach and ocean water recreational activities.

The Los Angeles County Department of Public Health, Environmental Health Division (the Department), in partnership with the City of Los Angeles Bureau of Sanitation and the Sanitation Districts of Los Angeles County, conducts year-round, weekly ocean water sampling at 40 locations along the County coastline and at an additional 5 locations on Catalina Island from April 1 ñ October 31. The results of all samples collected are transmitted electronically to the Department for review and interpretation.

Laboratory testing is performed on these water samples to evaluate bacteria levels that may affect the health and well-being of beach-goers as well as the potential environmental effects that stormwater run-off and accidental sewage spills may have on ocean water and beach quality.

The Annual Ocean Water Quality Report is intended to provide an overview of water quality standards, water quality testing methodology, and testing results for the Los Angeles County beaches during the calendar year, 2010. Each water sampling location is identified and has been assigned a letter grade that reflects the average of all sampling results collected throughout 2010. This average was calculated utilizing the 365-day geometric mean methodology that indicates the central tendency or typical value of a set of numbers.

For increased understanding of the ocean water monitoring program functions, the following sections have been included: a brief historical overview to identify the origin and evolution of the program; explanation of standards; authority; mandates; definitions; methodology; as well as maps, charts and tables.

## AUTHORITY

On October 7, 1997, Assembly Bill 411 was approved by the California legislature, amending Sections 115880, 115885, and 115915 of the California Health and Safety Code relating to public beaches. This bill required the California Department of Public Health (CDPH) to develop state-wide beach water quality criteria and monitoring regulations. As a result, the local jurisdictions were directed to test the ocean waters adjacent to all public beaches for total coliform, fecal coliform (E. Coli), and enterococcus, on a weekly basis from April 1 through October 31 of each year. Additionally, the law requires the local jurisdictions to close, or restrict the use of the public beaches if any violations of the standards are found to exist.

## DEFINITIONS

**Beach Rainfall Advisory** refers to a public advisory explaining that due to a rainfall event (greater than or equal to 0.1 inches of precipitation recorded by the National Weather Service) storm drain flows may cause elevated bacterial counts at storm drains entering the ocean waters. This advisory warns the public that ocean water contact should be avoided for at least 72 hours after rainfall has ended in those areas adjacent to the storm drains.

**Dry-Weather Sampling** refers to samples that are collected when there has been NO significant rainfall that would cause the storm drains to flow.

**Exceedance** refers to the amount by which a pollutant exceeds the established standard.

**Geometric Mean** refers to a rolling calculation which averages a numerical value of all samples collected for a set period of time.

**Reportable Sewage Spill** refers to any sewage discharge which has passed the curb and entered the street gutter flowing toward or entering the storm water system which empties into the ocean.

**Total Maximum Daily Load** (TMDL) is a regulatory term found in the U.S. Clean Water Act (CWA), that describes a value of the maximum amount of a pollutant/contaminant that a body of water can contain while continuing to meet water quality standards.

**Wet-Weather Sampling** refers to samples that have been collected any time that there has been greater than or equal to 0.1 inches of precipitation recorded by the National Weather Service in downtown Los Angeles.

## HISTORY

Following a 4 million-gallon sewage spill in 1987, the Los Angeles County Board of Supervisors passed a Motion which directed the Department to monitor surf zone ocean waters and close beaches when waters became polluted. At that time, basic ocean monitoring protocols were implemented. As a result of the 1987 sewage discharge, the Los Angeles County Auditor-Controller initiated an investigation regarding the sewage spill reporting system. The investigation revealed numerous failed communication protocols between local wastewater operators and the Department staff. The investigation also revealed that over the course of ten years, wastewater treatment collection systems experienced 208 spills which released over 11 million gallons of untreated sewage. Of these spills, over 90 percent were NOT reported to the Department.

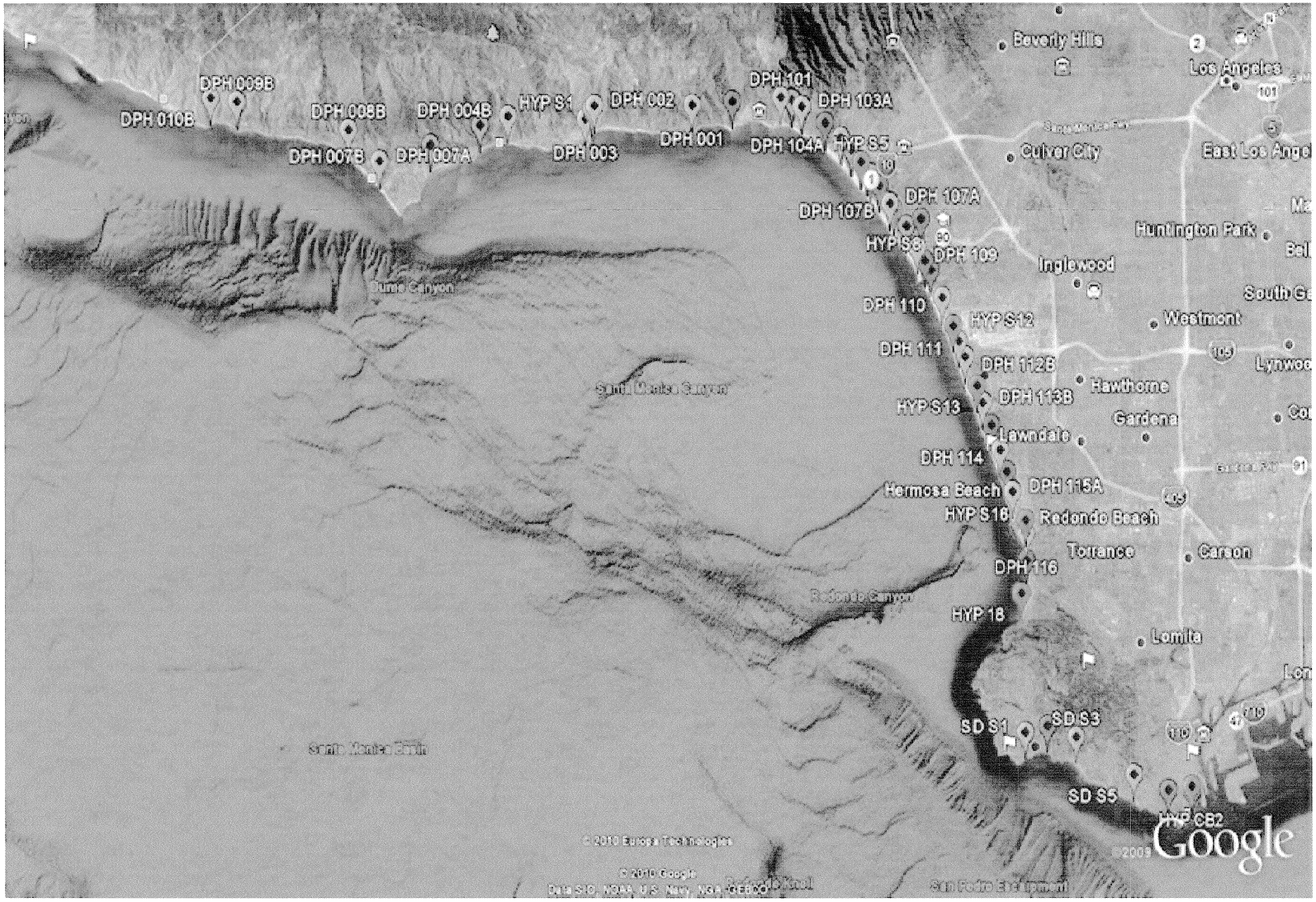
In late 1997, the Santa Monica Bay beaches were designated by the State of California as impaired and included on California's 1998 CWA 303(d) list of impaired waters due to excessive amounts of coliform bacteria. The presence of high coliform bacteria concentrations in surface waters is an indication that water quality may not be adequate to support healthy use of these waters for human body contact recreation. The Recreational Waters Program, a program within the Department, assumed the responsibility for carrying out the requirements of AB 411 as well as coordinating the Santa Monica Bay shoreline monitoring efforts for TMDLs. This included development of sampling protocols for determining monitoring site locations and establishment of the frequency of samples to be collected based on exceedances associated with indicator bacteria. Twenty-six sampling sites were selected based on the requirements defined in AB 411.1 Shortly thereafter, the California Regional Water Quality Control Board (State Board) in collaboration with the Los Angeles Region (Regional Board) released a first draft of the Santa Monica Bay Beaches Bacterial Total Maximum Daily Load (SMBBB TMDL). The Regional Board staff later decided to separate the SMBBB TMDL into two TMDLs, one for dry and one for wet weather. Both the SMBBB dry and wet weather TMDLs were approved by the Environmental Protection Agency (EPA) in June 2003.

Effective July 15, 2003, the Regional Board implemented the Santa Monica Bay Beaches Bacteria TMDL. The Department, in partnership with the City of Los Angeles Bureau of Sanitation and the Sanitation Districts of Los Angeles County, were required to establish a coordinated shoreline monitoring program along the Santa Monica Bay shoreline. Pursuant to these TMDLs, the collaborative monitoring program was implemented on April 7, 2004, and utilized the Department's Ocean Monitoring Program as well as the monitoring conducted by the City of Los Angeles Bureau of Sanitation, and the Sanitation Districts of Los Angeles County.

The Recreational Waters Program expanded their sampling sites to include additional monitoring locations at storm drains located along the Santa Monica Bay in 2004, as a result of the SMBBB TMDL. The Department added 14 new monitoring locations, now totalling 40 sites. Since that time, the Department has continued to collect forty (40) ocean water samples every Monday along the Los Angeles County coastline from the Redondo Beach Pier to Leo Carillo Beach, a distance of approximately 42 miles (**FIGURE 1**). During the months of April through October five additional samples are collected on Catalina Island (**FIGURE 2**)

1 AB 411 established that all beaches visited by more than 50,000 people annually and located in those areas adjacent to storm drains that flow during the summer require ocean water sampling.

Figure 1: Los Angeles County coastline




Sampling locations that are collected by Department of Public Health- DPH

Sampling locations that are collected by City of Los Angeles –Hyperion Sewage Treatment Plant- HYP

Sampling locations that are collected by Los Angeles County Sanitation District- SD


Figure 2: Avalon Catalina Island

## SEWAGE SPILL NOTIFICATION PROTOCOLS

For the first time, County-wide sewage spill notification protocols were implemented in 2007, mandating sewage collection agencies to report all sewage releases resulting from their collection systems. These protocols required that the Department be notified immediately upon identification of any release of sewage or effluent of treated sewage discharged into any Waters of the State.

These new procedures required sewage collection agencies to report sewage spills to the Health Officer within fifteen minutes following verification that a sewage discharge or sanitary overflow has occurred or is occurring from a collection system. In response to notification of the discharge or diversion of sewage from the public sewerage system, effective steps can be promptly taken to ensure that the general public is informed of the discharge via appropriate media outlets and by posting at potentially impacted beaches and recreational areas.

During the first year of implementation, Los Angeles County experienced an increase in the number of sewage discharge reports that resulted in multiple beach closures. Sewage spill discharges reported to the Department from city and county collection agencies increased from 26 reports in 2006 to 773 in 2007. This increase was a direct result of the new sewage spill notification protocol.

Taking advantage of this new protocol, the Department has been able to better track sewage spills and respond efficiently when such spills involve ocean waters and threaten the health and safety of beach users. There were 3 beach closures in 2007 resulting from sewage spill notifications; in 2008, there were 2 beach closures; in 2009, there were 2 more beach closures; and in 2010, there were 3 beach closures (**TABLE 1**).

Table 1

| 2008 | Beach Closures | # of Spills | 2009 | Beach Closures | # of Spills | 2010 | Beach Closures | # of Spills |
|---|---|---|---|---|---|---|---|---|
| Jan | 0 | 89 | Jan | 1 | 87 | Jan | 0 | 45 |
| Feb | 1 | 89 | Feb | 0 | 54 | Feb | 1 | 45 |
| Mar | 0 | 70 | Mar | 0 | 60 | Mar | 0 | 54 |
| Apr | 1 | 77 | Apr | 0 | 50 | Apr | 0 | 29 |
| May | 0 | 72 | May | 0 | 41 | May | 0 | 32 |
| Jun | 0 | 79 | Jun | 0 | 26 | Jun | 0 | 37 |
| July | 0 | 60 | July | 0 | 26 | July | 0 | 39 |
| Aug | 0 | 65 | Aug | 0 | 26 | Aug | 2 | 30 |
| Sep | 0 | 56 | Sep | 1 | 48 | Sep | 0 | 35 |
| Oct | 0 | 49 | Oct | 0 | 46 | Oct | 0 | 25 |
| Nov | 0 | 54 | Nov | 0 | 44 | Nov | 0 | 47 |
| Dec | 0 | 71 | Dec | 0 | 55 | Dec | 0 | 34 |
| Total | 2 | 831 | Total | 2 | 563 | Total | 3 | 452 |

## SAMPLING METHODOLOGY

All ocean water samples are collected in the surf-zone at ankle-to-knee-depth, approximately 4 to 24 inches below the water surface. Samples are collected directly in front of the storm drains at "point zero" or at the "A" sites. The "B" location samples are collected approximately 50 yards north or south from "point zero" locations as an additional safety measure to monitor effluent downstream from "point zero". In the 2010 calendar year DPH collected a total of 2,079 samples.

Additional external sampling is also conducted by the City of Los Angeles - Hyperion Sewage Treatment Plant (HYP) and the Los Angeles County Sanitation District (SD) under the requirements of the Santa Monica Bay Coordinated Shoreline Monitoring Program. The complete Shoreline Monitoring Program Plan is available at the following link: http://dpw.lacounty.gov/wmd/NPDES/beachplan.cfm. Under this program, HYP and SD sample at 19 and 9 locations respectively, but with greater frequency than that of the Department. The results of all samples collected are transmitted electronically to the Department for review and interpretation. The total coastline covered by all sampling agencies within Los Angeles County extends approximately 70 miles, not including Catalina Island **(TABLE 2)**.

TABLE 2

| | DPH Coastline | DPH Catalina | Hyperion | Sanitation District |
|---|---|---|---|---|
| Number of Locations | 40 | 5 | 19 | 9 |
| Total Samples Collected for 2010 | 2079 | 206 | 3186 | 478 |
| | | | | **Total Samples:** 5,949 |

Analysis of the samples is conducted by the Los Angeles County Department of Public Health Laboratory in Downey, CA. The samples are analyzed for total coliform, fecal coliform (*E. Coli*), and enterococcus. Complete analysis by the lab requires 24-30 hours. The results are then transmitted to the Department electronically for review, interpretation and implementation of any necessary enforcement action.

For a more accurate representation and comparison of the beach conditions, sampling data are separated for more accurate interpretation during dry weather versus wet weather periods. During a heavy rainfall, a significant amount of pollution / contamination may enter storm drains and subsequently empty into the ocean waters. This may have a significant effect on sampling data. Following rainfall events, levels of bacteria rise significantly and may continue at the elevated levels for up to 3 days following, depending upon the intensity of the rain and the volume of runoff.

The water quality bacteriological minimum standards set by the California Code of Regulations, Title 17, Section 7958, states "*Based on the mean of the logarithms of the results of at least five weekly samples during any 30-day sampling period, the density of bacteria in water from any sampling station at a public beach or public water contact sports area, shall not exceed*:

1,000 Total Coliform per 100 ml;
**OR**
200 Fecal Coliform (E.Coli) per 100 ml;
**OR**
35 Enterococcus per 100 ml"

Tests revealing bacterial levels that are greater than these established standards indicate exceedances.

## ADVISORIES


When the water quality samplings indicate that the State standards have been exceeded, WARNING signs are posted at the beach, cautioning the public to avoid water contact until bacterial levels again meet State standards. BEACH CLOSED signs are posted when a known sewage discharge has occurred.

The Department notifies the Los Angeles County Fire Department – Lifeguard Division to post signage at the affected portions of the beach. The white WARNING sign (**shown at right**) with red and black stripes is posted at locations along the beach where State standards have been exceeded. Each time the water sampling test results indicate that standards are exceeded at specific sampling locations, additional samples are collected within 24 – 48 hours. Once the samples indicate that water quality standards have been met, the WARNING signs may be removed. When a rainfall event is predicted or as one occurs, a Beach Rainfall Advisory is issued by the Department. A rainfall event begins anytime there is greater than or equal to 0.1 inches of precipitation recorded by the National Weather Service in downtown Los Angeles. The rain gauge is located at the University of Southern California. A rainfall event may be declared with lesser amounts of rainfall if there is a possibility that localized rainfall in a specific part of the county may affect bacterial levels in ocean waters.


The white WARNING sign **(shown at left)** with yellow and black stripes are posted at storm drains during rain / storm events by Los Angeles County Fire Department – Lifeguard Division, fifty yards in both directions of the storm drain. Permanently posted WARNING signs with yellow and black stripes are affixed at each storm drain advising the public that historical data indicates that contact with ocean water in that area may cause illness.

The Department Public Information Officer will issue, as soon as practicable, a public advisory explaining that storm drain flows may cause elevated bacteria levels at storm drains entering the ocean waters. This advisory warns the public that ocean water contact should be avoided for at least 72 hours after rainfall has ended in those areas adjacent to the storm

drains. The latest information on ocean water quality conditions is available to the public 24 hours / day, 7 days / week, on the Environmental Health Ocean Water Quality Hotline at (800) 525-5662 and on the website at: www.publichealth.lacounty.gov/beach by clicking on "Los Angeles County Beach Advisories."

The yellow BEACH CLOSED sign (**shown at right**), is immediately posted when a suspected or confirmed sewage discharge has entered the ocean waters. Beach areas that were closed due to a known release or discharge of untreated or inadequately treated sewage shall be re-opened ONLY when it has been determined that the source of the sewage release has been eliminated, the closure was for a minimum of 48 hours after cessation of the sewage flow and following two consecutive re-samples indicating that the State standards have been met. This warning and closure information is immediately posted to the Department website and made available on the Ocean Water Quality hotline. The hotline and website are updated daily to reflect all changes in ocean water quality sampling data.


## LOW-FLOW DIVERSIONS IN LOS ANGELES COUNTY

The Santa Monica Bay Beaches of Los Angeles County, the Los Angeles County Flood Control District along with the City of Los Angeles have constructed over 30 low flow diversions within several storm drains that discharge into the ocean. A low flow diversion collects dry weather urban runoff before it reaches the ocean and pumps it to the sanitary sewer system for treatment.

Nineteen of the low flow diversions have been constructed exclusively by the Los Angeles County Flood Control District since 2001. The implementation of the low flow diversions have effectively reduced the amount of dry-weather urban runoff that would have been discharged directly into the ocean, having a very positive effect on the beach water quality along the Santa Monica Bay Beaches.

## SAMPLING DATA FOR 2010

Throughout 2010, samples were collected weekly along the coastline on the mainland, and from April 1 – October 31, samples were collected weekly on Catalina Island. Each week, upon receipt of the sampling results from the lab, the sampling data is reviewed and grades are posted to the Environmental Health website. If the sampling results reflect exceedances beyond the State standards, the Fire Department lifeguards are notified to post warnings at the applicable beaches.

The following day, re-samples are again collected at those beaches where exceedances occurred to verify improved conditions. Once again, when conditions are improved, the Environmental Health website is updated, always indicating the current conditions of each beach area. The sampling results for all sites sampled during 2010, and the applicable annual (average) grade, including those samples by Hyperion and the Sanitation Districts are listed in the following table (**TABLE 3**). The **LEGEND** for this table is found immediately following the listing to provide greater understanding of the terminology used. A graph summarizing these results is provided (**FIGURE 3**), which identifies those locations with the highest rates of exceedances.

## Table 3: Sampling data for 2010 by collection site

[*Grades are based on 2009 GEO mean calculation]

| Station | Total Samples | Dry Weather Samples | Dry Weather Exceedances | Dry Weather Compliance | Wet Weather Samples | Wet Weather Exceeedamce | Wet Weather Compliance | *Annual Grades |
|---|---|---|---|---|---|---|---|---|
| **DPH (010)** Leo Carrillo Beach, 35000 PCH | 51 | 42 | 2 | 95% | 9 | 1 | 89% | A |
| **DPH (009)** Nicholas Beach, Malibu | 51 | 42 | 1 | 98% | 9 | 1 | 89% | A |
| **DPH (008)** Trancas Beach, Malibu | 51 | 42 | 4 | 90% | 9 | 3 | 67% | A |
| **DPH (007)** Westward Beach, Malibu | 53 | 44 | 2 | 95% | 9 | 2 | 78% | A |
| **DPH (006)** Paradise Cove, Malibu | 57 | 47 | 9 | 81% | 10 | 5 | 50% | C |
| **DPH (005)** 26610 Latigo Shore Drive, Malibu | 51 | 42 | 1 | 98% | 9 | 3 | 67% | B |
| **DPH (004)** Puerco Beach, 25500 PCH, Malibu | 51 | 48 | 3 | 93% | 9 | 94% | 56% | B |
| **DPH (003)** 26610, Malibu Point: Colony Drive: Malibu | 51 | 42 | 1 | 98% | 9 | 3 | 67% | B |

## Table 3: Sampling data for 2009 by collection site

[*Grades are based on 2009 GEO mean calculation]

| Station | Total Samples | Dry Weather Samples | Dry Weather Exceedances | Dry Weather Compliance | Wet Weather Samples | Wet Weather Exceeedamce | Wet Weather Compliance | *Annual Grades |
|---|---|---|---|---|---|---|---|---|
| **DPH (002)** Malibu Pier:Malibu | 57 | 48 | 7 | 85% | 9 | 6 | 33% | C |
| **DPH (001)** Big Rock Beach: 19900 Pacific Coast Hwy., Malibu | 51 | 42 | 1 | 98% | 9 | 5 | 44% | B |
| **DPH (101)** 17200 Pacific Coast Hwy. Pacific Palisades. | 53 | 44 | 5 | 89% | 9 | 3 | 67% | B |
| **DPH (102)** Bel Air Bay Club: 16801 PCH Pacific Palisades. | 58 | 48 | 9 | 81% | 10 | 6 | 40% | C |
| **DPH (103)** Temescal storm drain: Los Angeles | 55 | 46 | 6 | 87% | 9 | 6 | 33% | B |
| **DPH (104)** Montana Ave: Santa Monica. | 52 | 43 | 2 | 95% | 9 | 6 | 33% | B |
| **DPH (105)** Wilshire Blvd: Santa Monica | 51 | 42 | 2 | 95% | 9 | 5 | 44% | B |
| **DPH(106)** Strand Street extended: Santa Monica | 51 | 42 | 0 | 100% | 9 | 5 | 44% | B |
| **DPH (107)** Brooks Avenue: Los Angeles | 51 | 42 | 1 | 98% | 9 | 7 | 22% | B |

## Table 3: Sampling data for 2010 by collection site

[*Grades are based on 2009 GEO mean calculation]

| Station | Total Samples | Dry Weather Samples | Dry Weather Exceedances | Dry Weather Compliance | Wet Weather Samples | Wet Weather Exceeedamce | Wet Weather Compliance | *Annual Grades |
|---|---|---|---|---|---|---|---|---|
| **DPH (108)** Venice Pier: Venice | 51 | 42 | 0 | 100% | 9 | 5 | 44% | A |
| **DPH (109)** Topsail Street:Venice | 53 | 43 | 1 | 98% | 10 | 6 | 40% | B |
| **DPH (110)** World Way: Playa del Rey | 51 | 42 | 5 | 88% | 9 | 4 | 56% | B |
| **DPH (111)** Hyperion Plant 1: mile marker, Playa del Rey | 51 | 42 | 0 | 100% | 9 | 5 | 44% | A |
| **DPH (112)** Grand Avenue:El Segundo | 53 | 44 | 2 | 95% | 9 | 6 | 33% | B |
| **DPH (113)** 28th Street: Manhattan Beach | 54 | 45 | 4 | 91% | 9 | 7 | 22% | B |
| **DPH (114)** 26th Street: Hermosa Beach | 51 | 42 | 0 | 100% | 9 | 5 | 44% | A |
| **DPH (115)** Herondo storm drain:Redondo | 53 | 44 | 5 | 89% | 9 | 8 | 11% | B |
| **DPH (116)** Topaz Street: Redondo Beach | 53 | 43 | 3 | 93% | 10 | 4 | 60% | B |

## Table 3: Sampling data for 2010 by collection site

[*Grades are based on 2009 GEO mean calculation]

| Station | Total Samples | Dry Weather Samples | Dry Weather Exceedances | Dry Weather Compliance | Wet Weather Samples | Wet Weather Exceeedamce | Wet Weather Compliance | *Annual Grades |
|---|---|---|---|---|---|---|---|---|
| **DPH (117)** Avalon Beach 1/3 of the way between storm drain & & the Green Pleasure Pier | 34 | 30 | 7 | 77% | 4 | 1 | 75% | C |
| **DPH (118)** Avalon Beach 2/3 of the way between storm drain & the Green Pleasure Pier | 44 | 40 | 23 | 43% | 4 | 1 | 75% | C |
| **DPH (119)** Avalon Beach 1/3 of the way between the Green Pleasure Pier & Busy Bee Rest. | 46 | 41 | 28 | 32% | 5 | 4 | 20 | F |
| **DPH (120)** Avalon Beach 2/3 of the way between the Green Pleasure Pier & Busy Bee Rest. | 42 | 37 | 19 | 49% | 5 | 3 | 40% | D |
| **DPH (121)** Avalon Beach Between the Busy Bee Restaurant and Tuna Club | 40 | 36 | 17 | 53% | 4 | 2 | 50% | C |

## Table 3: Sampling data for 2010 by collection site

[*Grades are based on 2009 GEO mean calculation]

| Station | Total Samples | Dry Weather Samples | Dry Weather Exceedances | Dry Weather Compliance | Wet Weather Samples | Wet Weather Exceedance | Wet Weather Compliance | *Annual Grades |
|---|---|---|---|---|---|---|---|---|
| **Hyperion - S1** Malibu Creek: Malibu Lagoon County Beach | 254 | 194 | 65 | 66% | 60 | 41 | 32% | C |
| **Hyperion - S2** Topanga Canyon: Topanga County Beach | 254 | 194 | 68 | 65% | 60 | 37 | 38% | C |
| **Hyperion - S3** Pulga Canyon: Will Rogers State Beach | 48 | 35 | 2 | 94% | 13 | 2 | 85% | B |
| **Hyperion - S4** Santa Monica Canyon: Santa Monica State Beach | 254 | 193 | 24 | 88% | 61 | 6 | 41% | B |
| **Hyperion - S5** Santa Monica Pier: Santa Monica State Beach | 254 | 193 | 30 | 84% | 61 | 32 | 48% | B |
| **Hyperion - S6** Pico- Kenter: Santa Monica State Beach | 251 | 190 | 12 | 94% | 61 | 39 | 36% | B |
| **Hyperion - S7** Ashland Santa Monica State Beach | 254 | 193 | 3 | 98% | 61 | 25 | 59% | B |
| **Hyperion - S8** Windward Ave Venice Beach | 48 | 35 | 3 | 91% | 13 | 6 | 54% | B |

## Table 3: Sampling data for 2010 by collection site

[*Grades are based on 2009 GEO mean calculation]

| Station | Total Samples | Dry Weather Samples | Dry Weather Exceedances | Dry Weather Compliance | Wet Weather Samples | Wet Weather Exceedance | Wet Weather Compliance | *Annual Grades |
|---|---|---|---|---|---|---|---|---|
| **Hyperion - S9** Marina del Rey Beach | 249 | 189 | 20 | 89% | 60 | 36 | 40% | C |
| **Hyperion - S10** Ballona Creek, Dockweiler State Beach | 255 | 195 | 22 | 89% | 60 | 35 | 42% | B |
| **Hyperion - S11** Culver Dockweiler State Beach | 56 | 43 | 0 | 100% | 13 | 5 | 62% | B |
| **Hyperion - S12** Imperial Hwy: Dockweiler State Beach | 51 | 38 | 2 | 95% | 13 | 3 | 77% | B |
| **Hyperion - S13** 40th Street: Manhattan Beach | 51 | 38 | 0 | 100% | 13 | 2 | 85% | A |
| **Hyperion - S14** Manhattan Beach Pier | 51 | 38 | 0 | 100% | 13 | 4 | 69% | A |
| **Hyperion - S15** Hermosa Beach Pier | 51 | 38 | 2 | 95% | 13 | 2 | 85% | A |
| **Hyperion - S16** Redondo Beach Pier | 255 | 195 | 40 | 79% | 60 | 32 | 47% | C |
| **Hyperion - S17** Avenue I SD, Redondo Beach | 51 | 38 | 2 | 95% | 13 | 5 | 62% | B |
| **Hyperion - S18** Malaga Cove: Palos Verdes Estates | 51 | 38 | 1 | 97% | 13 | 3 | 77% | A |

## Table 3: Sampling data for 2010 by collection site

[*Grades are based on 2009 GEO mean calculation]

| Station | Total Samples | Dry Weather Samples | Dry Weather Exceedances | Dry Weather Compliance | Wet Weather Samples | Wet Weather Exceedance | Wet Weather Compliance | *Annual Grades |
|---|---|---|---|---|---|---|---|---|
| **Terminal Island Shoreline (CB1)** Inner Cabrillo Beach: off boat lanch ramp, San Pedro | 249 | 179 | 20 | 89% | 45 | 24 | 47% | A |
| **Terminal Island Shoreline (CB2)** Inner Cabrillo Beach: San Pedro In front of restroom, ex. of museum | | | | | | | | |
| **San District SD1** Long Point: Rancho Palos Verdes | 52 | 43 | 1 | 98% | 9 | 0 | 100% | A |
| **San District SD2** Abalone Cove: Rancho Palos Verdes | | | | | | | | |
| **San District SD3** Portuguese bend: Rancho Palos Verdes | 54 | 43 | 0 | 100% | 11 | 3 | 73% | A |
| **San District SD5** White Point: San Pedro | | | | | | | | |
| **San District SD6** Wilder Addition Park: San Pedro | 53 | 43 | 0 | 100% | 10 | 2 | 80% | A |
| **San District SD7** Outer Cabrillo Beach: San Pedro | | | | | | | | |
| **San District SDB** Bluff Cove:Palos Verdes Estates | 53 | 43 | 0 | 100% | 10 | 1 | 100% | A |
| **San District SD MC** Malaga Cove: Palos Verdes Estates | | | | | | | | |

## Legend

**Total samples:** Total number of samples that are collected in entire 2009 calendar year.

**Dry-Weather Samples:** Samples collected during non-rain advisory period; potentially collected when there is no storm drain flowing into the ocean.

**Exceedance:**

**When lab results are greater than the amount established by California Health and Safety Code, section 115880:**

10,000 for total coliform per 100ml
400 fecal coliform (*E.coli.*) per 100ml
104 enterococcus per 100ml

**Dry-Weather exceedance:** Number of exceedances during Dry-Weather sampling

**Wet-weather samples:** Samples collected during rain advisory period, Potentially during time of flowing storm drain into the ocean

**Wet-weather exceedance:** Number of exceedance during Wet-Weather sampling.

**Dry-Weather compliance:** Percentage of Dry-Weather samples that did not show an exceedance.

**Wet-Weather compliance:** Percentage of Wet-Weather samples that did not show an exceedance

***Annual grades:** Grades are based on the 365-day geometric mean (the average of the logarithmic values of a data set) for the entire year, where grading is based on the following criteria:

## Grades

| | A | B | C | D | F |
|---|---|---|---|---|---|
| Total Coliform | <500 | 501-1000 | 1001-2000 | 2001-3000 | >3000 |
| Fecal Coliform | <100 | 101-200 | 201-400 | 401-600 | >600 |
| Enteococcus | <18 | 19-35 | 36-70 | 71-105 | >105 |

ALL UNITS ARE MEASURED PER 100 ML

Percentage of Time Sampling Locations Met State Standards in 2010
Percentage
Los Angeles County Coastline
Santa Monica Bay
Palos Verdes Peninsula
South Border
Redondo Beach
Terminal Island
Catalina Island

## SUMMARY

The Los Angeles County Ocean Monitoring Program was started as a result of the 4,000,000 gallon sewage spill in 1987. Since that time, improvements have been made at the local and State levels in protecting the health and well-being of Californiaís beach-goers by informing the public of ocean water quality test results, and by limiting stormwater run-off and accidental sewage spills. This has been accomplished through: routine sample collection and analysis of the ocean water; posting of beach advisories and closure signs; implementation of sewage spill notification protocols; development of storm water flow diversion systems; creation of the beach grading system; and the posting of ocean water quality test results on the Department of Public Health website.

In calendar year 2010, there were 5,949 ocean water samples collected and analyzed. Based on the following criteria, annual beach grades were issued:

> The water quality bacteriological minimum standards set by the California Code of Regulations, Title 17, Section 7958, states "*Based on the mean of the logarithms of the results of at least five weekly samples during any 30-day sampling period, the density of bacteria in water from any sampling station at a public beach or public water contact sports area, shall not exceed*:
>
> 1,000 Total Coliform per 100 ml;
> **OR**
> 200 Fecal Coliform (E.Coli) per 100 ml;
> **OR**
> 35 Enterococcus per 100 ml"
>
> Tests revealing bacterial levels that are greater than these established standards indicate a failure to meet the State ocean water quality standards. Superior grades, however, are based on bacteriological results that indicate even *fewer* bacteria than the counts required to meet the minimum standard.

### Grades

| | A | B | C | D | F |
|---|---|---|---|---|---|
| Total Coliform | <500 | 501-1000 | 1001-2000 | 2001-3000 | >3000 |
| Fecal Coliform | <100 | 101-200 | 201-400 | 401-600 | >600 |
| Enterococcus | <18 | 19-35 | 36-70 | 71-105 | >105 |

ALL UNITS ARE MEASURED AS BACTERIAL ORGANISMS PER 100 ML

Therefore, the beach grading in Los Angeles County includes beach grades where ocean water samples surpassed the State standards and are graded as superior. This means that a "B" grade met the State standard, however, an "A" grade surpassed the standard. An ocean water sample is collected at each collection site every week. Each time the sample does not meet the State ocean water quality standards, a Warning Sign is posted at the beach and the beach remains posted until additional water samples verify that the ocean water meets State standards.

Based on this methodology, three beaches in the calendar year 2010 failed to meet the minimum State standards and received a grade of "D" or "F" on a regular basis. These sampling locations were at two of the Avalon Beaches on Catalina Island, and the Inner Cabrillo Beach in San Pedro. These beaches are in enclosed bays or are in areas that have minimal water circulation and dispersion, which leads to elevated levels of bacteria. The agencies responsible for overseeing these beaches have received funding from the Clean Beach Initiative to assist with corrective actions in lowering bacterial levels.

During the calendar year 2010, the following beaches received a grade of "C": three Avalon beach sampling locations; Paradise Cove; Malibu Pier; Bel-Air Bay Club; Malibu Creek/Lagoon; Topanga Canyon; and the Redondo Pier. Several of these beaches are in areas where the watershed from nearby creeks feed directly into the ocean, contributing to elevated levels of bacteria. The Redondo Pier is under further study to identify the source of high fecal indicator bacteria.

The majority of people visit the Los Angeles County beaches during the dry weather months of April through October when there is little to no rain. This report found Los Angeles County beaches complied with the State ocean water quality standards 86% of the time during dry-weather months in calendar year 2010. However, when rainy season and dry-weather results are averaged together (all-weather), the compliance results are reduced to 78%.

Overall beach ratings will continue to be lower though if enclosed beaches and beaches with minimal water circulation continue to fail to meet State standards. The Avalon beach sampling locations on Catalina Island had a compliance rate of approximately 50%. If these sampling results are removed from the total samples collected, the overall compliance rate for all-weather sampling would increase from 78% to 85%.

**Table 4: Los Angeles County Beaches State Compliance Rate**

| SAMPLE LOCATIONS | DRY WEATHER | TOTAL SAMPLES (Dry and Wet Weather) |
|---|---|---|
| **All DPH Locations** | 87% | 81% |
| **DPH locations (excluding Catalina)** | 93% | 85% |
| **Catalina Island only** | 51% | 50% |
| **Hyperion** | 83% | 74% |
| **Sanitation District** | 99% | 96% |
| **TOTAL L.A. COUNTY** | 86% | 78% |

Since inception of the Ocean Water Quality Program in Los Angeles County, the public notification of ocean water quality has continued to improve. Notification of accidental sewage spills now prompts immediate posting of beach closures. Routine sampling ensures timely identification of possible contamination and warnings to the public to avoid contact with ocean water. The collaborative efforts between the County Departments of Public Health, Fire - Lifeguards Division, Public Works, Sanitation Districts, and the City of Los Angeles, have established a high standard of public health protection for this program. These combined efforts continue to make invaluable contributions to the safety of the residents of Los Angeles County and to all who visit the local beaches. Continued enhancements to program activities will focus on those areas where the ocean water quality is consistently poor, in identifying the causes of poor ocean water quality, and in seeking out long term solutions to improve ocean water quality.

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*Beach Advisories*
http://publichealth.lacounty.gov/phcommon/public/eh/water_quality/beach_grades.cfm